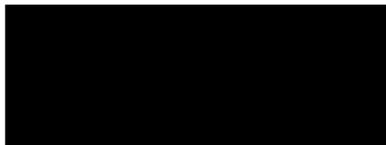


THE RECEIPT RECORD IN SOVIET ECONOMIC GROWTH

C. AGRICULTURE

STATINTL



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COMMODITIES

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C. AGRICULTURE

Summary

The vast industrialization program promoted by Stalin was made possible by restrictions on the agricultural sector and Soviet consumers. This program included the restriction of investment and current inputs in agriculture, the payment of minimum prices for the compulsory delivery of farm products, the setting of maximum retail prices on farm products, the forcing of rural labor into industry, and the use of agricultural exports to pay for imports of industrial equipment. Holding down the levels of consumption and agricultural development created a serious imbalance in the Soviet economy. Although large numbers of rural workers were forced into industry, the capital base of agriculture was so low that it remained a labor-intensive sector, and the movement of farm workers into industry eventually slowed down. Furthermore, the continued low level of agricultural output limited the incentive of industrial workers. Thus, at the time of Stalin's death, the stagnation of agriculture was a threat to future industrial growth.

During the period 1954-58, Khrushchev sought to create a better balanced economy by increasing the rate of agricultural investment relative to industrial investment, by raising prices for farm products, and by instituting a number of organizational measures. Much of the increment in agricultural investment was sunk in the new lands development -- the eastward expansion of wheat cultivation. To support expansion of the livestock industry, a program for a large increase in the area planted to corn was inaugurated in 1955, and a campaign to catch up with the US in per capita production of meat and milk was launched in 1957. These

measures, augmented by better-than-normal weather conditions, lifted agriculture out of its stagnant position and temporarily provided a better balance between agricultural and industrial development.

In recent years, however, the rate of agricultural investment has declined relative to industrial investment, acreage expansion has become marginal, and weather conditions have returned to normal or worse than normal. With little progress in agricultural output during these years, the problem of raising the level of Soviet agriculture without impairing industrial growth has again become acute.

In January 1961, Khrushchev advocated correcting the growing imbalance between producer and consumer goods. He evidently believed that overfulfillment of industrial production goals would generate substantial resources throughout the remaining years (1961-65) of the Seven Year Plan period, a large share of which could be invested in the consumer and agriculture sectors. During 1961, however, it became clear that increased space, defense, and industrial construction costs placed other demands on these funds. In June 1962, state prices for livestock purchased from collective farms and individuals were increased an average of 35 percent in order to stimulate the lagging animal husbandry sector, which had been operating at huge losses on most farms. Significantly, the financing of this price increase was to fall not on defense or on heavy industry, but on the consumer. Aside from several concessions to improve the poor financial condition of the collective farms, there is little evidence that the priority of agriculture has been raised.

Organizational changes and a new program to change the cropping pattern have been substituted for Khrushchev's promise of a large increase in agricultural investment. Radical reorganizations in 1961 and 1962 weakened the position of the technical agricultural specialists and governmental managerial class and enhanced the position of the Party bosses in agricultural administration. Unwilling or unable to depend on decentralized administration based on the recommendations of technical specialists, Khrushchev has again embarked on a program that relies on discipline and agitation by the strong Party organization. This latest program calls for changing the cropping pattern by plowing up grassland and fallow land and planting corn, sugar beets, peas, and field beans. In the short run this program could result in a sizable increase in the production of the feed crops necessary to increase livestock production, but in the long run the program is likely to be self-defeating as soil moisture and nutrients decline. Reducing the area of clean fallow in the new lands will compound the risks in that area where production of crops is already a hazardous venture.

1. Recent Trends in Output

a. Validity of Statistics

The student of Soviet agriculture has always been faced with serious problems in the interpretation of official data. From 1933 to at least 1953 the USSR officially perpetrated overestimation of the production of agricultural crops by not deducting harvest losses from the estimates of crops in the fields. Following Stalin's death, however, the new Soviet leadership indicated an awareness that the misleading nature of Soviet statistics on agricultural production was masking a critical situation. Although publication of statistics on agricultural production increased somewhat after 1953, data continued to be fragmentary. Production of grain continued to be guarded as a state secret until Khrushchev's revelation of the grain situation in December 1958.

Whereas the official policy of overestimating agricultural production was apparently discontinued after 1953, statistical malpractices at the lower levels increased, especially after 1957. The dissolution of the machine tractor stations (MTS's) at the beginning of 1958 resulted in the loss of an effective statistical control mechanism. Furthermore, since 1957, Soviet administrators and farm managers have been confronted with impossible goals. Khrushchev at times has insisted personally that officials adopt unrealistic pledges and then made it clear that their careers depended on meeting these pledges. Many officials have reacted by falsifying records. Opportunists and glory seekers contributed to a wave of statistical falsification. Unscrupulous

individuals, in hopes of rapid promotion in the Party or government apparatus, undertook ridiculously high pledges, some of which were subsequently fulfilled by padding statistics.

There were many convenient opportunities for deception. Farm managers are often able to manipulate the statistics relative to the share of production which remains on the farm. Animal husbandry, in particular, lends itself to fabrications of data. For instance, the fact that milk fed by hand to animals (not suckled) is included in Soviet statistics on production of milk can be utilized for padding accounts with relatively complete freedom of detection if not greatly abused. Some overzealous farm managers, however, created absurd situations for themselves. The Lenin Bayogi kolkhoz in Uzbekistan claimed, for example, that during the first quarter of 1961 7 tons of milk were hand fed to young pigs -- as much as was needed to fulfill the plan for production of milk. It was later revealed that the kolkhoz did not raise pigs. It is relatively easy to pad data on livestock feed, most of which remains on the farm. Shortcomings can be disguised by writing off livestock as having perished from disease, weather, and predatory animals.

Before the revelations of widespread falsification of statistics in recent years, the acreage and procurement data were believed to be reasonably accurate. This confidence was unwarranted. In January 1961, Khrushchev drew an admission from N.V. Podgorny, Party First Secretary of the Ukraine, that corn acreages in the Ukraine (the largest corn producing area in the USSR) were falsely reported. In 1960, one rayon in Pavlodar oblast in Kazakhstan included 13,000 hectares of uncut

grain and 10,000 hectares of unthreshed grain as "harvested area" and padded its figures on production of grain by 21,800 tons.

One common malpractice has been the delivery of feed and seed stocks of grain in order to fulfill or exceed the plan for deliveries of grain. At the January 1961 Plenum, Khrushchev revealed that 22 percent of the grain procured by the government in the RSFSR in 1959 was returned to the farms. In order to fulfill procurement plans, many farm managers purchase products such as meat, milk, or eggs on the kolkhoz market or from farm members and credit the purchases to the production of the farm.

The scandalous extent of statistical falsification was indicated by the issuance of a decree in May 1961 which invoked a prison sentence of up to 3 years for those persons guilty of making "inflated entries in state accounts or other deliberate distortions of accounts on the fulfillment of plans."

The widespread falsification of statistics in recent years probably resulted in a significant upward bias, for most of the falsification was generated by pressures to fulfill goals. Nevertheless, no downward revisions were made in the production statistics for any of the major agricultural commodities (except cotton) in the Narodnoye Khoz-yaystvo SSSR v 1960 Godu, published in August 1961. Production figures for a large number of commodities as well as for the index of gross agricultural output were even higher than those published earlier. A policy of not making downward revisions in national statistics on agricultural production was implied in the Soviet statistical journal Vestnik Statistiki in June 1961:

... The perversions of accounting data by individual workers did not influence the overall totals of statistical works, because the basic indices of the development of the national economy of the USSR are mutually controlled and made precise on the basis of comparability of the different sources and of all-round economic and statistical analysis. These national economic totals do not and cannot arouse any doubts.

Many statistics on agricultural production, however, are not really verified by central authorities. Although officials should have fairly firm statistical control over that part of agricultural production which the government procures, it was revealed that there was collusion among top officials to pad procurement accounts. For example, the fact that all cotton is procured by the state and that production statistics can be verified by ginning records did not prevent high-level collusion to falsify cotton statistics in Tadzhikistan.

b. Index of Agricultural Production, 1950-61

(1) Some Limitations of the Index

The following index represents an attempt to provide a comprehensive measure of the changes for 1950 through 1961 in net agricultural production in the USSR:

1950	100		1956	139
1951	91		1957	139
1952	103		1958	157
1953	104		1959	148
1954	107		1960	154
1955	123		1961	162

The measure of agricultural production chosen is the sum of the price-weighted quantities of the major crops and animal products, including

changes in inventories of livestock, with deductions for the amounts of potatoes, grain, and milk fed to livestock (to avoid double-counting) and with deductions of potatoes and grain used as seed. Because of the many serious problems involved -- foremost of which is the reliability of statistics -- the results must be used with caution. The index is a more reliable indicator of the changes over a period of years than of those between any 2 given years. It is a more reliable indicator of the direction of change than of the precise amount of change. The computation of such an index involves problems of three main types: (a) incomplete coverage of the commodities, (b) possible errors in the estimates of the gross and net production of the various commodities, and (c) the choice of a system of weights for aggregating the commodities. This index covers all the major agricultural commodities produced in the USSR except eggs, fruits, and vegetables, so that the limitation of coverage probably is not serious. Estimates of the gross production of commodities, which in some cases differ significantly from official data, are discussed in the following sections. Errors in the estimates of the gross and net production of the commodities in some cases may be quite large,* but the effects of such errors on the index probably are not excessive. State purchase prices (July 1958) were used as weights with some adjustments for free market sales. Although a case may be made for alternative weights, their use probably would not affect the main configuration of the index.

* In addition, changes in inventory of livestock are estimated by means of changes in the number of livestock and ignore changes in weight and value.

(2) Changes in Agricultural Production

During the period 1951-54, only limited gains were registered in net agricultural production. A rapid expansion in sown acreage together with a good harvest of grain in the Ukraine in 1955 and a bumper harvest of wheat in the new lands in 1956 raised the index of production substantially. An excellent harvest for most crops coupled with gains in livestock products resulted in a large increase in production in 1958. Since 1958 the index reflects the general stagnation in Soviet agriculture. This lack of progress is in part due to the fact that 1958 was an excellent crop year, whereas the succeeding 3 years have been only average or below. In part, the lack of progress has been caused by the chronic shortcomings of the agricultural sector -- inadequate material incentives to the farmers; inadequate investment, as reflected in a shortage of critical machinery, spare parts, and mineral fertilizers; and ineffective, over-centralized direction.

c. Production of Major Crops and Livestock Products

Much of the increase in production of crops that occurred during the past decade in the USSR is attributable to an expansion in the sown acreage. This expansion was primarily confined to the period 1954-56 when the new lands were being plowed. The acreage of grain and other crops used primarily for livestock feed increased most.

As noted in the section on the validity of statistics, since December 1958 the USSR has published figures on production of grain claimed to be in terms of "barn yield" rather than "biological yield."

These claims are given below (in millions of metric tons), along with estimates for those years where the claims do not appear to be reasonable:

<u>Year</u>	<u>Soviet Claims</u>	<u>Estimates</u>
1950	81	
1951	79	
1952	92	
1953	83	
1954	86	
1955	107	
1956	128	115
1957	105	
1958	141	125
1959	126	100
1960	134	100
1961	137	115

Based on reports on crop conditions, weather information, and grain acreage data, the Soviet claims for production of grain for the years 1950-57 (published since December 1958) appear to be fairly reliable. For 1956 the difference between the claim and the estimate represents an adjustment for extraordinary post-harvest losses in the new lands caused by an acute shortage of facilities to store and transport the bumper crop. Beginning in 1958, Soviet statistics on production of grain appear to be highly inflated.

The USSR has been relatively unsuccessful in increasing production of potatoes. Although acreage expanded somewhat from the low level of the early 1950's, it has declined in recent years to a level only slightly higher than in 1950. Potato yields have not increased during the past decade.

Production of most technical crops in the USSR has increased rapidly during the past decade (see Table 1*). The amounts of sugar beets, sunflower seeds, and fiber flax produced in recent years are about double the size of the harvests in the early 1950's. The increase in production of sugar beets is largely the result of an expansion in acreage whereas increased yields accounted for most of the increase of sunflower seeds and fiber flax. Increases in the yield of cotton were achieved largely by shifting cotton from nonirrigated to irrigated land.

Production of meat, milk, and wool increased rapidly during the period from 1950 to 1960 (see Table 2**). Khrushchev took measures to raise the incentives of the livestock producers, and great emphasis was placed on expanding the livestock industry in connection with the corn program and the program to catch up with the US in the per capita production of meat and milk.

* Table 1 follows on p. 12.

** Table 2 follows on p. 13.

Table 1

Production of Crops in the USSR
1950-61

Year	Million Metric Tons				
	Potatoes	Ginned Cotton a/	Sugar Beets b/	Sunflower Seed	Fiber Flax
1950	88.6	1.18	20.8	1.80	0.255
1951	70.0	1.24	23.7	1.70	0.194
1952	72.0	1.26	22.3	2.20	0.212
1953	72.6	1.28	23.2	2.63	0.162
1954	75.0	1.40	19.8	1.91	0.218
1955	71.3	1.29	31.0	3.80	0.381
1956	96.0	1.44	32.5	3.95	0.521
1957	87.8	1.40	39.7	2.80	0.440
1958	86.5	1.45	54.4	4.63	0.438
1959	86.7	1.55	43.9	3.02	0.364
1960	84.4	1.43	57.7	3.97	0.425
1961	84.0	1.50	50.6	4.00 c/	0.403

a. Ginned cotton is assumed to equal one-third of raw (seed) cotton procurements.

b. Not including sugar beets grown for livestock feed.

c. Estimated. The USSR claims a record harvest of 4.7 million tons.

Table 2

Production of Livestock Products in the USSR

1950-61

Million Metric Tons			
<u>Year</u>	<u>Meat a/</u>	<u>Milk a/</u>	<u>Wool</u>
1950	4.87	35.3	0.180
1951	4.67	36.2	0.192
1952	5.17	35.7	0.219
1953	5.82	36.5	0.235
1954	6.28	38.2	0.230
1955	6.32	43.0	0.256
1956	6.60	49.1	0.261
1957	7.37	54.7	0.289
1958	7.70	58.7	0.322
1959	8.92	61.7	0.356
1960	8.68	61.7	0.357
1961	8.4 b/	62.5	0.367

a. Because of differences in definition or concept, statistics on Soviet production of meat and milk are not comparable with US data for these products.

b. Estimated. The USSR claims that 8.8 million tons of meat were produced in 1961.

2. Major Programs to Stimulate Growth

Khrushchev has sponsored four main programs aimed at a rapid increase in agricultural production: the new lands program; the corn program; the program to catch up with the US in production per capita of meat and milk; and the latest program, which calls for a radical change in the cropping system.

a. New Lands Program

The new lands program was conceived and carried out with a speed unmatched in agricultural history. The original goal announced in early 1954 was to reclaim and seed not less than 13 million hectares by 1955, primarily in Kazakh SSR and Siberia. In August 1954, however, when harvest prospects looked excellent, a new decree was published which raised the goal to between 28 million and 30 million hectares and extended the terminal date to 1956. This new goal was reached in 1955. Since 1955 the plowing of new land has continued at a slower pace, reaching a total of 42 million hectares in 1960.

In 1955, which probably was the most costly year of the program, the new lands accounted for approximately 20 percent of the total planned allocations of budgetary expenditures for agriculture. Allocations of agricultural machinery were large and were made at the expense of the older agricultural areas. Loans of equipment from other areas were important in facilitating the harvesting and delivery of grain to concentration points.

The latitude, soils, and climate of much of the new lands area are somewhat analogous to those of the prairie provinces of

Canada -- Manitoba, Saskatchewan, and Alberta -- one of the greatest wheat-producing regions in the world. The topography of the new lands is easily adapted to large-scale, mechanized grain farming. Much of the soil is fairly suitable for production of grain, although alkalinity is a serious problem in some areas.

More important than the marginal or submarginal character of some of the soils is the hazard of climate. There is no mountain barrier between the new lands and the Central Asian deserts to the south or the Arctic region to the north. When the dry, hot winds from Central Asia sweep northward, a disastrous drought may result, and Arctic winds may bring snow in August.

The average annual rainfall in the Siberian portion of the new lands is quite similar to that in the Canadian wheat belt, ranging from about 12 inches along the border between the Kazakh SSR and Siberia to 16 inches along most of the northern edge of the new lands. Cultivation of crops is especially hazardous in much of the new land in Kazakh SSR, where the average annual rainfall ranges from about 12 inches to about 9 inches.

Because of the extreme fluctuations from year to year in the amount and distribution of rainfall, the size of the harvest varies sharply in the new lands, especially in Kazakh SSR. In 1954 and 1956, growing conditions were unusually favorable, and the yields of grain were well above average. In 1955 and 1957, however, most of the new lands suffered from drought, cutting yields to much below average. A good harvest was gathered in 1958, but yields during 1959-61 were relatively poor. Moisture supplies

were inadequate in 1959 and 1961, and cool, moist weather in 1960 promoted heavy weed infestation. Estimates of production of grain in the new lands and their contribution to the total Soviet production of grain are shown below:

<u>Year</u>	<u>Sown Area (Million Hectares)</u>	<u>Yield (Centners per Hectare)</u>	<u>Production (Million Metric Tons)</u>	<u>Proportion of Total Production* (Percent)</u>
1954	4.3	10.5	4.5	5
1955	18.5	4.3	8	7
1956	26	9.6	25	22
1957	26	5.0	13	12
1958	26	8.8	23	18
1959	23	7.0	16	16
1960	26	6.9	18	18
1961	26	5.8	15	13

In the past few years, several Soviet writers have recommended increasing the area of clean fallow -- with an implied reduction in grain acreage -- in order to control weeds, conserve moisture, reduce wind erosion, and achieve higher and more stable grain yields in the new lands. The leadership, however, has adopted the policy of trying to maximize production of grain in the new lands in the short run. This pressure to increase production of grain threatens the future of the new lands as a stable grain base. The latest major program, which calls for radical changes in the cropping system, has already resulted in a further reduction in the area of clean fallow. This program is discussed under a separate heading.

b. Corn Program

Until 1955, corn occupied a relatively unimportant place in the agriculture of the USSR. The USSR has no large area with conditions

* Total production has been estimated and differs from official claims in some cases.

of soil and climate as favorable for production of corn as in the US corn belt. In 1954, corn occupied only 4 percent of the area sown to grain.

In January 1955, Khrushchev introduced a program for expanding production of corn. He said that the livestock feed situation was serious, adding that it was on the basis of corn that the US succeeded in achieving a high level of livestock production. He proposed to increase the area of corn from the 4.3 million hectares in 1954 to 28 million hectares in 1960, an area almost equal to the 30 million hectares planted to corn in the US in 1957. Much of this expansion had to take place in areas where corn had never been grown and where it was impossible for commonly grown types of corn to mature as grain. Khrushchev therefore emphasized production of corn silage and green feed as well as corn for grain. The program was rapidly implemented, and by 1962 corn acreage had expanded to 37 million hectares (see the tabulation below).

<u>Year</u>	<u>Million Hectares of Corn</u>	<u>Year</u>	<u>Million Hectares of Corn</u>
1954	4.3	1959	22.4
1955	17.9	1960	28.2
1956	23.9	1961	25.7
1957	18.3	1962	37.0
1958	19.7		

In 1956 and 1960 large acreages of wheat were winterkilled and were reseeded to corn, which accounts for the abnormally high corn acreage in those years. The program to change the cropping pattern, initiated this year, resulted in a large expansion in corn acreage in 1962, although some of this expansion may be accounted for by the need to reseed winterkilled grains.

Not only was the area planted to corn to be expanded, but yields were to be increased greatly under Khrushchev's program. He spoke glowingly of the success in the US of increasing yields by use of hybrid seed. His analysis of this success, however, was superficial. He over-emphasized the gains attributable to the introduction of hybrid seed, and the experience in the US that he cited as largely irrelevant to Soviet conditions. In developing the corn program, Soviet planners have continued to emphasize the importance of hybrid seed, but there is no evidence that they have yet made widespread use of well-adapted and productive hybrids.

Because of the inexperience of Soviet farmers in growing corn, the lack of locally adapted hybrids, equipment shortages, and the variable weather, the size of the corn crop (grain and silage, expressed in "grain equivalents") has fluctuated from lows of 7 million to 8 million tons in 1957 and 1959 to a high of 19 million tons in 1961. In spite of these sharp fluctuations in the size of the crop, the corn program has contributed considerably to the feed supply and to recent increases in the output of livestock products.

c. "Catch-up" Program

For years, Soviet orators have boasted of the industrial might of the USSR and promised to surpass the nations of the Free World in industrial production. Before 1957, however, no such promises were made for Soviet agricultural production, and certainly not for production of milk and meat. Indeed, in September 1953, Khrushchev had singled out the livestock sector as the most backward segment of Soviet agriculture, revealing that the numbers of dairy cows and of all cattle were even less

than in 1916 and that only small increases had been achieved in the number of hogs, sheep, and goats. Increases in procurement prices during 1953-56, however, and a record grain harvest in 1956 resulted in a significant improvement in the livestock sector, and in May 1957 Khrushchev launched a program to catch up to the US in per capita production of milk and meat. The following month, he boasted that the USSR would produce 70 million tons* of milk in 1958 and 20 million to 21 million tons* of meat by 1960 or 1961. A summary of these goals and actual production for the years 1956-61 illustrates the complete lack of realism in Khrushchev's boast:

Year	Million Metric Tons			
	Milk		Meat	
	<u>Goal</u>	<u>Actual</u>	<u>Goal</u>	<u>Actual</u>
1956		49		6.6
1957		55		7.4
1958	70	59		7.7
1959		62		8.9
1960		62	20 to 21	8.7
1961		63		8.4

In the same speech in which he announced his goals, Khrushchev admitted that some Soviet economists had calculated that Soviet production per capita of milk and meat could not be raised to US levels until 1975, but he cast aside their advice. Two reasons may account for Khrushchev's failure to accept the views of his economists. Undoubtedly the record grain crop of 1956 had bolstered Soviet hopes. Also, Khrushchev's boasts were part of an important propaganda campaign: the promises to overtake the US have been given wide distribution throughout the world. Khrushchev

* Since the US statistical definitions of milk and meat differ from the Soviet definitions, the USSR would have to produce more than the quantities quoted by Khrushchev to achieve US per capita production in comparable terms.

stressed that these goals disproved Western claims that the USSR is negligent in its concern for production of consumer goods, and he said that the achievement of his goals for meat and milk would "hit the pillar of capitalism with the most powerful torpedo yet seen." He stated: "Our actions, aimed at raising the economy and at improving the people's well-being, will exert on the minds of vacillators an influence which will be stronger than other methods. And such people will be more anxious to cooperate with us, to side with Marxist-Leninist theory and with the working class in the struggle against capitalism. It will be a great thing, comrades!"

Although the Party Central Committee continued to refer to the "catch-up" campaign in its official May Day Slogans until 1960, the announcement of the Seven Year Plan goals in November 1958 amounted to an admission that there was no chance of catching the US in per capita production of meat by 1960 or 1961. The 1965 meat production goal was set at 16 million tons in contrast to Khrushchev's target of 20 million to 21 million tons by 1960-61. In 1961 the "catch-up" campaign was dropped as a May Day Slogan, and the faded campaign posters were replaced by fresh pledges to surpass the US in per capita milk output in 1963 and in per capita meat output in 1970.

Although Khrushchev's boasts in 1957 were completely unrealistic, the increased emphasis on livestock production, combined with a bumper grain harvest in 1958, produced a significant gain in production of meat and milk during the period 1957-59. Since 1959, however, the per capita output of meat has declined and the per capita output of milk has failed to increase.

d. Flow-up Program

At the 22nd Party Congress in October 1961, Khrushchev initiated a program that eventually will eliminate the grass rotation system of farming, reduce the area seeded to oats, and restrict the practice of clean fallowing. Following the Party Congress, Khrushchev toured the agricultural areas of the USSR, promoting his program, and at the March 1962 Party Plenum he firmly **admonished** those opposing it. Cultivated crops -- corn, peas, field beans, and sugar beets -- will be sown on the acreages released.

Grasses currently occupy an important place in Soviet agriculture, but they are not so prevalent in the crop rotations as the current controversy over the grassland system might imply. Under Stalin this system was indiscriminately introduced in all agricultural areas of the USSR. Following Stalin's death, however, the system was discarded in those areas where it was clearly not suited, chiefly the semiarid zones. About 17 to 18 percent of Soviet sown acreage was in perennial and annual grasses and clover in 1959. In the more humid Northwest, however, they occupied about one-third of the sown area.

In the temperate zone, grasses and clovers serve a beneficial purpose in crop rotations by maintaining the fertility and structure of the soil while providing a cheap source of livestock feed. Labor and machinery requirements are generally much less than for cultivated crops. In the USSR, where lack of fertilizers has long handicapped agriculture, grasses and clovers have contributed significantly toward soil fertility. Furthermore, grass rotations make possible a more efficient use of labor and equipment because the harvest of hay does not coincide with that of other crops.

Clean fallowing, though not extensively practiced in the USSR in recent years, has been acclaimed by many Soviet scientists as a partial answer to the low yields caused by weed infestation and frequent drought in the arid new lands region. Canadian experience suggests that Soviet farmers have been sowing a dangerously large proportion of cropland to grain in the new lands. In contrast to 30 to 40 percent of the cropland in clean fallow in the Canadian wheat belt, only about 10 percent of the cultivated land in the new lands area was fallowed in 1959. Failure to institute proper crop rotations in the new lands has already been reflected in decreasing yields.

Khrushchev's tour of the major agricultural areas in late 1961 was aimed at propogandizing the abolition of the grassland system of farming and overcoming the opposition that his proposal had aroused among scientists and specialists. The press campaign waged against this system took on the proportions of a major offensive, which is indicative of significant opposition. At the March 1962 Party Plenum on agriculture, Khrushchev stated:

The harmful effect of the grassland farming system is evident. But it cannot be said that its advocates are abandoning their positions. They are trying to uphold them stubbornly. In a letter from a group of scientists of the Lithuanian Agricultural Research Institute they assert that grass must be the foundation of the fodder base of stockbreeding Similar reports come from other areas.

Khrushchev's position was upheld in a resolution of the Plenum condemning the grassland system.

The decision to restructure the cropping system is aimed at rapidly improving production of meat and milk by increasing the feed supply. At the March Plenum, Khrushchev frankly admitted: "We simply do not have

enough meat If we remain with the present disposition of sown crops, and with the present yields, we shall have no feed. There will be no meat or milk either today or tomorrow."

In 1961, 64 million hectares, or almost 30 percent of the cultivated area, was in sown grass, clean fallow, and oats. Khrushchev plans eventually to shift 41 million hectares* of this area to cultivated crops -- corn, peas, field beans, and sugar beets. In 1962, about 16 million hectares were shifted to cultivated crops and 10 million additional hectares to wheat, barley, and millet, leaving about 38 million hectares in sown grass, clean fallow, and oats. The total sown area increased 11 million hectares (about 5 percent) above 1961.

In the short run the abandonment of the grass rotation system and the reduction of fallow could result in a sizable increase in production of feed crops. The decision to increase the area in cultivated crops in the face of shortages of fertilizers and machinery involves considerable risk, however, and in the long run the program is likely to be self-defeating as soil moisture and nutrients decline. Reducing the area of clean fallow in the new lands will compound the risks in that area where production of crops is already a hazardous venture.

The change has dealt a low blow to Soviet agricultural science. Refutation by fiat of a system of agriculture, which in some degree has general acceptance throughout the world and which has been the official basis of Soviet agriculture since the late 1930's, could well have a demoralizing effect on Soviet scientists comparable to that caused by the repudiation of classical genetics and official adherence to Lysenkoism in 1948.

*. The manpower and equipment requirements of the shift in cropping pattern will probably be roughly similar to those of the new lands.

3. Factors Influencing Growth

a. Capital Inputs in Agriculture

During the period of the new course and the new lands programs the Soviet consumer and the agriculture sector enjoyed improved positions in the scale of national priorities. The percentage of total "productive" investment that went into agriculture reached a peak in 1955. At the January 1961 Party Plenum, Khrushchev announced another era of high priority for these sectors. The sincerity and urgency of Khrushchev's proposal at the January Plenum may be tested by comparison with the new course and new lands programs that were unquestionably in earnest.

Khrushchev's remarks at the January Plenum on the subject of priority of economic goals bore a striking resemblance to Malenkov's statements when he launched the new course consumer goods program in August 1953. A careful study of the speeches reveals almost identical wording on the subject, except that Malenkov's program was urgent and definite while Khrushchev's was long-term and vague. Malenkov's new course speech soon generated a series of implemental decrees which spelled out detailed short-run targets and specific priorities. The September 1953 Plenum resolution, for example, directed the construction materials ministries to give first priority to the MTS system in the shipment of materials. Although recently revised plans for rural electrification, irrigation, and allocation of equipment and fertilizer seem to reflect a long-range increase in the priority of Soviet agriculture, none of the "inputs" decrees and resolutions that have followed the January 1961 Plenum has clearly pegged agriculture at a higher level in the scale of

immediate priorities. For instance, in his opening speech at the March 1962 Plenum, Khrushchev suggested that it would be desirable to give priority to the building of three new agricultural equipment plants. The Plenum resolution, however, bypassed this suggestion, merely noting that "it is necessary to find additional capital" for agricultural equipment plants.

Quantitative indicators reflect no significant change in the priority status of agriculture during 1961. Agricultural ("productive") investment increased only about 6 percent in 1961 compared with increases of 45 percent in 1954 and 38 percent in 1955, the beginning years of the new lands program (see Table 3*). Allocations of trucks and buses to agriculture remained below the 1954-58 level (see Table 4**). Only 69 percent of the total tractor output was allocated to agriculture in 1961, in contrast to 74 percent for the period 1954-57.*** The production of agricultural machinery (excluding trucks, buses and tractors), which rose 28 percent in 1961, still fell short of the peak 1957 level of output. The plan for new capacity for the production of critical spare parts and fertilizer for 1959-61 were fulfilled only 64 percent and 44 percent, respectively.

State investment in agriculture, scheduled to increase 25 percent in 1962, probably will increase little more than enough to keep pace

* Table 3 follows on p. 26.

** Table 4 follows on p. 27.

*** In March 1962, Khrushchev noted that the agricultural park on 1 January 1962 included 790,000 trucks and 1,168,000 tractors compared with "requirements" of 1,650,000 trucks and 2,696,000 tractors.

Table 3

"Productive" Capital Investment in Soviet Agriculture a/
1951-61 and 1962 Plan

Year	Million New Rubles b/			Index (1951 = 100)	Agricultural Invest- ment as a Percentage of Total Investment d/
	State	Kolkhoz c/	Total		
1951	1,025	836	1,861	100	15.8
1952	971	962	1,933	104	14.6
1953	881	1,029	1,910	103	13.7
1954	1,536	1,226	2,762	148	17.0
1955	1,992	1,812	3,804	204	20.5
1956	2,118	1,906	4,024	216	18.7
1957	2,343	1,860	4,203	226	17.6
1958	2,279	2,462	4,741	255	17.3
1959	2,021	3,050	5,071	272	16.4
1960	2,471	2,721	5,192	279	15.3
1961 e/	3,000	2,500	5,500	296	N.A.
1962 Plan	3,700 f/	N.A.	N.A.	N.A.	N.A.

a. Data exclude outlays for "establishment of herds" and for capital repair.

b. In prices of 1 July 1955 adjusted to the new 1961 rate of exchange

c. Data exclude outlays for tractors and agricultural machinery that formerly belonged to the MTS system.

d. Productive capital investment in agriculture expressed as a percent of the total investment in the economy (excluding private housing).

e. Estimated.

f. An increase of 25 percent compared with 1961.

SOURCES: Kapital'noe stroitel'stvo v SSSR, Moscow, 1961, pp. 40, 152 and 155.
SSSR v tsifrakh v 1961 godu, Moscow, 1962, p. 297.
Voprosy ekonomiki, no. 7, 1962, p. 50.

Table 4
 Allocation of Trucks, Tractors, and Agricultural Machinery
 to Soviet Agriculture
 1953-61 and 1962 Plan

Year	Trucks a/		Tractors		Agricultural Machinery b/ (Million New Rubles)
	Thousand Units	Percent of Production	Thousand Units	Percent of Production	
1953	69	25	76	68	N.A.
1954	116	38	99	73	N.A.
1955	111	33	123	75	540
1956	114	31	140	77	710
1957	125	33	148	73	1,000
1958	102	26	158	72	850
1959	76	21	144	68	689
1960	66	17	157	66	753
1961	86 c/	21 c/	181	69	964
1962 Plan	100	N.A.	216	73	1,138

a. Including buses.

b. Excluding trucks, buses and tractors production in prices of 1 July 1955 adjusted to the new 1961 rate of exchange. Figures for 1956-58 are estimated based on production in physical units.

c. Estimates based on 6-month period.

SOURCES: Ekonomika sel'skogo khozyaystva, no. 1, 1962, pp. 4-6.
FBIS Daily Report (USSR and East Europe), 15 Mar 62.
Traktory i sel'khoz mashiny, no. 1, 1962, p. 1; no. 4, 1962, p. 2.
Sel'skoe khozyaystvo SSSR, Moscow, 1960, p. 419.
Narodnoe khozyaystvo SSSR v 1960 godu, Moscow, 1961, p. 291, 292, 293, 491.
SSSR v tsifrakh v 1961 godu, Moscow, 1962, p. 124.

with the growth of the State sector in agriculture, which is being accomplished largely by the conversion of collective to state farms.* Measures enacted during the period January 1961 to June 1962 (discussed more fully in the next section, Prices and Wages) are expected to make available to the collectives a total additional sum of 2.35 billion rubles.*** If one-fourth of this is set aside for investment, as has been normal practice in recent years, then capital available for kolkhoz investment will be an estimated 15 to 20 percent above the 1961 level. The actual level of kolkhoz investment in 1962, however, will depend to a large extent on weather; on the amount of conversion of collectives to state farms; and on the availability of equipment, fertilizer, and other capital inputs.

Production of agricultural equipment thus far in 1962 shows improvement over 1961, but the allocation of equipment apparently will fall short of that required to meet the expanded workload in 1962.

Production of fertilizer during 1959-61 increased at a rate far short of that needed to meet the Seven Year Plan goal (see Table 5***). The planned increase in the output of fertilizer for 1962, the midyear of the Seven Year Plan, is below the average annual increase implied by the original Seven Year Plan directives. Production figures for the first 6 months of 1962 indicate that even this modest plan probably will not be met. Annual fertilizer production plans for the years 1959-62 were small.

* In 1961 the state sector increased its sown acreage by 20 percent, primarily through conversion. Further conversions are planned in 1962.

** Ruble values in this report are in new rubles (1961 rate of exchange).

*** Table 5 follows on p. 29.

Table 5

Production of Mineral Fertilizer in the USSR

~~1959-61 and 1960 and 1962 Plans~~

<u>Year</u>	<u>Production</u>	Million Metric Tons <u>a/</u>
		<u>Actual Increase Above Previous Year</u>
1958	12.4	0.6
1959	12.9	0.5
1960	13.9	1.0
1961	15.3	1.4
1962 Plan	17.2	1.9
		<u>Average Increase During 1959-65</u>
1965 Plan	35.0 <u>b/</u>	3.2

a. Gross weight.

b. Original Seven Year Plan. Recent information suggests that the plan has been raised to 37.7 million tons.

SOURCES: SSSR v Tsifrakh v 1961 godu, Moscow, 1962, pp. 97, 122.
Sel'skaya zhizn', 10 March 1962.

in relation to the 1965 fertilizer target, suggesting that the 1965 target was not a serious goal, although there is some indication that larger increases were planned for the later years of the Seven Year Plan period. In recent months there have been signs that the regime is becoming more earnest about the 1965 goal. The chemical industry is making an effort to overcome the lack of progress by introducing an incentive system for workers engaged in the production of fertilizers and by allocating a larger share of its investment funds to fertilizer plants. Although these measures may raise fertilizer output in the longer run, they probably are not sufficient to overcome this significant lag in the Seven Year Plan period.

Clearly Khrushchev's current consumer-agriculture program lacks the initial vitality of the new course and new lands projects. At the January 1961 Plenum, Khrushchev spoke of this program as "compensation for lost opportunities." In his closing remarks on the requirements of agriculture, delivered at the March 1962 Plenum, he hinted that still more opportunities may be lost:

It can be stated beforehand that in a few years we shall perhaps reproach ourselves for not having fully taken into account our possibilities for the development of agriculture.

The Plenum failed to give agriculture the priority which Khrushchev had asked for in his opening speech. The above quotation may be both an admission of defeat and a disclaimer of responsibility for future consequences.

In summary, when Khrushchev initiated his consumer-agriculture program in January 1961, he evidently believed that industrial overfulfillment would continue to generate substantial funds throughout the remaining years (1961-65) of the Seven Year Plan, a large share of which could be invested in the consumer and agriculture sectors. During 1961, and perhaps earlier, it became increasingly clear that there were other demands on these funds from increased space, defense, and industrial construction costs. Although Khrushchev continued to press for his consumer-agriculture program in his opening speech to the March 1962 Plenum, his closing speech cautioned agricultural leaders and workers not to expect the immediate transfer of funds to agriculture to the detriment of industry and defense. On 1 June 1962 an apologetic appeal to the population spelled this out more clearly. Livestock prices were to be increased, but the financing of the price increases would fall not on defense, not on heavy industry, but on the consumer by means of higher retail prices. This latest reverse represents a setback to Khrushchev, who had promised in January 1961 that industrial funds would be transferred to the agriculture and consumer sectors and who, as early as 1958 and as recently as March 1962, had promised the consumer that retail prices for agricultural products would not be raised.

b. Prices and Wages

Money incentives were prominent among the measures taken to improve the agricultural situation following the death of Stalin. Procurement prices, which had been intolerably low for most agricultural

products, were raised; tax concessions were made; and obligatory deliveries from private plots were decreased and then abolished. However, additional stimuli necessary to overcome the inertia in the agricultural economy have been lacking in recent years.

A decree published in March 1956 recommended that collective farms make monthly cash "advances" to the farm members in partial payment* for the work done by them on the socialized sector of the farm during the month. Also, a sustained effort was made following the December 1958 Party Plenum to get the collective farms to abandon the workday (trudoden) system of labor payment, which included payment-in-kind, and to go over to a "guaranteed" monthly cash wage system. The implementation of these two measures was limited, probably because of the relatively poor financial status of most farms.

There is little evidence to indicate that the 1958 reform of the procurement price system took into consideration the full financial effects of the abolition of the MTS on the collective farms. Following the mediocre crop years of 1959 and 1960, the heavy financial burden that was imposed on the collective farms by the purchase of MTS machinery had become obvious. The increase in kolkhoz money income (as calculated in terms of current rubles per household) averaged only 8 percent above 1958 for those two years, while the expenses of the farms had greatly increased.

In 1961 and 1962 the regime took measures to improve the financial condition of the collective farms. The period over which they

* The final settlement or accounting by the farm with its members was still to be made at the end of the year.

could pay for the machinery purchased from the MFS's was extended; prices of trucks, tractors, gasoline, spare parts, building materials, and metal products were lowered; the tax on annual income from animal husbandry was reduced by 80 percent through 1965; interest on long-term state credits was lowered; and, beginning in 1962, the state was to assume the transportation costs for the delivering of products by the collective farms to procurement points up to 25 kilometers (the state was already paying those costs incurred beyond 25 kilometers). These measures are expected to save the collective farms about 1.35 billion rubles annually.

One of the most important measures taken since 1958 to stimulate the agricultural sector, especially in animal husbandry, is the 1 June 1962 decree, which raised the procurement prices for livestock and poultry obtained from collective farms and individuals an average of 35 percent, and raised procurement prices for butter and cream by 10 and 5 percent, respectively. Preliminary estimates indicate that the new prices will increase kolkhoz money income by about 1 billion rubles.* This billion rubles combined with the 1.35 billion ruble savings to be realized by collective farms from the measures taken in 1961 and early 1962 should raise collective farm income by about 15 to 20 percent above that for 1961. In 1961, added emphasis was given to rewarding workers with part of the above-plan production. Khrushchev recently held up as a model worker a Moldavian corn grower who received 9 tons of corn as his share of above-plan production. While the exceptional earnings of some farm workers are widely propagandized, few workers can expect similar rewards.

* This does not include additional kolkhoz income from a rise in prices for livestock products on the kolkhoz market. Although such a rise is likely, there is no good basis for estimating its magnitude. The prices paid to state farms for livestock deliveries according to the 1 June 1962 decree are to be increased to a level 10 percent below the prices paid to collective farms.

A new wage system, intended to increase the interest of workers on state farms in the results of their work, was adopted in 1961. Instead of a fixed wage for state farm workers, the new system provides that the wages of state farm workers will be partially dependent on the quantity and quality of production. In animal husbandry as much as 80 percent of the wage can be dependent on production, whereas in production of crops the proportion may be as little as 20 percent. Presumably the new state farm wage system will mean an over-all increase in wages, for 260 million additional rubles were allocated in 1961 for the readjustment. However, there has been no widespread publicity of the effectiveness of this new wage system, suggesting that at least to date the system has not produced the desired results.

4. Changes in Agricultural Organization

Indicative of the state of flux in Soviet agriculture since 1953 have been the many important change in agricultural organization at the highest levels. Following the death of Stalin in early 1953, the five agricultural Ministries (Agriculture, State Farms, Agricultural Procurement, Cotton Growing, and Forestry) were merged into one Ministry of Agriculture and Procurement. In the fall of 1953 the consolidated Ministry of Agriculture and Procurement was split into the Ministries of Agriculture, State Farms, and Agricultural Procurement. In 1955, planning responsibilities were transferred from the Ministry of Agriculture to Gosplan. In 1956 the procurement function of the Ministry of Agricultural Procurement was transferred to the Ministry of Agriculture, and its other functions were taken over by a newly organized Ministry of Grain Products. In 1957 the Ministry of State Farms was abolished, and the state farms under its jurisdiction were transferred to the Ministry of Agriculture.

a. The 1958 Reorganization of Machine Tractor Stations (MTS's)

Almost from the beginning of collectivization, the MTS had controlled nearly all the machinery used on the collective farms and had used this monopoly to control the activities of the collective farms. The role of the MTS was increased still further in 1956 with the transfer of responsibility for agricultural procurement from the Ministry of Agricultural Procurement to the Ministry of Agriculture. On the local level this responsibility was assigned to the MTS, which by now had become the focal point for local Party control and direction of the collective farms.

In January 1958, Khrushchev proposed the most important organizational change in Soviet agriculture since its socialization in the 1930's. He suggested stripping the MTS's of their power by relegating them to the status of repair and supply depots. In presenting his theses to the Plenum of the Central Committee, Khrushchev argued that the political and economic functions of the MTS had become outmoded now that the "socialist consciousness" of the collective farmers had increased and the collective farms were large and wealthy enough, with adequately trained cadres, to take over the machinery of the MTS. He stated that the indivisible funds of collective farms were large enough to pay for the machinery from the MTS's. An article in the December 1957 issue of the MTS journal, however, had expressed the opposite view.

The MTS journal proved to be correct. The abolition of the MTS shifted a large investment load from the state to the kolkhozes. This burden was especially heavy in the mediocre crop years of 1959 and 1960, leaving many kolkhozes in poor financial condition. By the end of 1959, kolkhoz investment reserves (per unit of sown area) had fallen to 50 percent of the 1956-57 level. Although investment reserve figures for the end of 1960 are not available, investments per hectare remained large in 1960, and the financial condition of the kolkhozes probably did not improve. In March 1958, Khrushchev stated that the leading collectives would be able to pay for MTS equipment in 1 or 2 years, average collectives in 2 or 3 years, and poor collectives in 5 years. In 1961 the state found it necessary to extend these payments 5 to 10 years more and to introduce other measures to alleviate the poor financial condition of the kolkhozes.

b. Reorganizations of 1961 and 1962

The administration of Soviet agriculture was radically changed by a series of decrees issued in the first quarter of 1961. The Ministry of Agriculture -- already weakened by the loss of its planning responsibilities in 1955, the abolition of its MTS system in 1958, and the loss of its supply function in 1960 -- was divested of the administration of state and collective farms and forestry, control over state purchases of agricultural products, and responsibility for the repair of agricultural machinery. These functions were scattered among several government organizations leaving no clear delineation of primary administrative responsibility.

The 1961 reorganization weakened the position of the governmental bureaucracy or managerial class and enhanced the position of the Party in agricultural administration. The March 1962 Party Plenum, which endorsed another reorganization of agriculture, clarified responsibility and formalized the dominant position of the Party in the administration of Soviet agriculture.* Now for the first time, the republic and oblast Party bosses have become a formal part of the state administrative machinery for agriculture. These bosses are responsive to the ruling Party Presidium -- in fact, some of the republic Party bosses are members of the Presidium.

* Opposition to the elimination of the grass rotation system of farming may have generated the decision to provide a clearer delineation of authority and an integral role for the Party in agricultural administration.

The reorganization, however, does not solve the basic problem of giving more flexibility of decision making at the farm level that is necessary for efficiency in agriculture. On the contrary, it appears that centralized decision making has been strengthened. A decree published in Pravda on 19 April 1962, aimed at upgrading the role of the specialists in agricultural production, may be an attempt to minimize publicly the role of the Party in agriculture. There is little doubt, however, that the Party, oriented towards centrally established goals, will prevail, probably even to a greater extent than in the past, over the recommendations of the specialists and the managerial class.

c. Importance of the Private Sector

The small private garden plots are one of the last remnants of legal private enterprise in the USSR. These plots, which have always been ideologically unpalatable in the Soviet system, have been tolerated for pragmatic reasons. The intensively cultivated plots, which occupied only 3.2 percent of the total sown area in 1961, contribute a disproportionately large share of the total output of many important food items such as vegetables, potatoes, meat, milk, and eggs. (see Table 6*). The plots provide a means for individual Soviet citizens to provide themselves with many food items that would not otherwise be available, and they provide farmers, particularly collective farmers, with a considerable share of their money income.

* Table 6 follows on p. 39.

Table 6

Share of the Private Sector in the Total Production of
Selected Agricultural Commodities a/
1940, 1953, and 1960

Year	Percent				
	Potatoes	Vegetables	Meat	Milk	Eggs
1940	N.A.	N.A.	72	78	94
1953	72	48	52	67	84
1960	63 b/	46 b/	41	47	81

a. Narodnoye khozyaystvo SSSR v 1960 gody and Sel'skoye khozyaystvo SSSR.

b. Data are for 1959.

It should be noted that some of the feed consumed by the privately-owned livestock is grown on socialized land. The current program to plow-up the grasslands probably will reduce the availability of "socialized" pasture to privately owned livestock.

The private plots compete with the socialized sector for the labor time of the farmers, and this competition has been of considerable concern to Soviet officials. In addition, the great disparity between yields on the private plots and on the collective farms has been a source of embarrassment to a regime committed to the doctrine of the superiority of socialized agriculture. The attitude of the Soviet government toward these small private plots, therefore, has been that as collective farming became more profitable, the private plots should decrease in importance. The official policy toward the plots has, however, vacillated greatly over

the years. At times the private plots have been taxed or otherwise penalized whereas in times of "thaw" they have been relieved of some of these burdens.

During the first few years after Stalin's death the regime adopted a rather lenient attitude toward the private sector. In 1953, there was a reduction in the taxes paid by collective farmers on their private plots, and, beginning in June 1954, collective farm private plots were exempted from the compulsory delivery of grain to the state. The collective farmers responded to these concessions, and in 1954-55 their private holdings of cattle increased as a share of total cattle holdings.

In 1956, however, legislation was enacted that encouraged reductions in the size of the plots and in the number of livestock belongings to the collective farmers. In the same year a tax was levied on livestock owned by urban workers and an attempt was made to prohibit urban workers from feeding inexpensive state store bread to their livestock. All compulsory deliveries from private plots were cancelled as of 1 January 1958. However, the drive to reduce the number of cattle in the private sector continued. By the decision of the December 1958 plenum, state farm workers were to sell their livestock to the state farms within 2 or 3 years, and collective farmers were "encouraged" to sell their livestock to the collective farms. Under decrees issued by various republics in 1959, urban dwellers were to sell their cattle to state or collective farms.

The measures enacted since 1956 have substantially reduced the relative importance of the private sector. The share of this sector

in the total sown area declined from 4.0 percent in 1955 to 3.2 percent in 1961. During the same period, privately owned cattle decreased from 46 percent to 29 percent of all cattle. Nevertheless, the private sector remains highly productive and much in evidence.